

WHAT IS CLAIMED IS:

1. A method for embedding information into a target element in which information is to be embedded, comprising the steps of:
 - obtaining plural sets of data values of a plurality of elements, each set of data values being obtained along one direction extending through the target element;
 - determining a strength of embedding information into the target element based on the plural sets of data values obtained in the obtaining step; and
 - embedding information into the target element based on the strength determined in the determining step.
2. The method for embedding information according to claim 1, wherein the determining step includes calculating variations for the plural sets of data values, wherein each variation is based on a respective set of data values obtained in the obtaining step, and determining the strength of the embedding information based on the calculated variations.
3. The method for embedding information according to claim 2, wherein the step of determining the strength of the embedding information based on the calculated variations includes selecting a direction with minimum variation from the calculated variations, and determining the strength of the embedding information based on the set of data values along the selected direction.
4. The method for embedding information according to claim 1, wherein the elements are elements of digital data.
5. The method for embedding information according to claim 4, wherein the digital data is image data and the element is a pixel.

6. The method for embedding information according to claim 1, wherein the data value is a luminance value.

7. An apparatus for embedding information into a target element[✓] in which information is to be embedded, comprising:

means for obtaining plural sets of data values of a plurality of elements, each set of data values being obtained along one direction extending through the target element;

means for determining a strength of embedding information into the target element based on the plural sets of data values obtained in the obtaining step; and

means for embedding information into the target element based on the strength determined in the determining step.

8. An apparatus for embedding information according to claim 7, wherein the means for determining includes means for calculating variations for the plural sets of data values, wherein each variation is based on a respective set of data values obtained by the obtaining means, and calculated variation determining means for determining the strength of the embedding information based on the calculated variations.

9. An apparatus for embedding information according to claim 8, wherein the calculated variation determining means includes selecting means for selecting a direction with minimum variation from the calculated variations, and direction determining means for determining the strength of the embedding information based on the set of data values along the selected direction.

10. An apparatus for embedding information according to claim 7, wherein the elements are elements of digital data.

11. An apparatus for embedding information according to claim 10, wherein the digital data is image data and the element is a pixel.

12. An apparatus for embedding information according to claim 7, wherein the data value is a luminance value.

13. A storage medium for storing therein an information embedding program for embedding information into a target element in which information is to be embedded, wherein said program causes a computer to execute the steps of:
obtaining plural sets of data values of a plurality of elements, each set of data values being obtained along one direction extending through the target element;
determining a strength of embedding information into the target element based on the plural sets of data values obtained in the obtaining step; and
embedding information into the target element based on the strength determined in the determining step.

14. A storage medium according to claim 13, wherein the determining step includes calculating variations for the plural sets of data values, wherein each variation is based on a respective set of data values obtained in the obtaining step, and determining the strength of the embedding information based on the calculated variations.

15. A storage medium according to claim 14, wherein the step of determining the strength of the embedding information based on the calculated variations includes selecting a direction with minimum variation from the calculated variations, and determining the strength of the embedding information based on the set of data values along the selected direction.

16. A storage medium according to claim 13, wherein the elements are elements of digital data.

17. A storage medium according to claim 16, wherein the digital data is image data and the element is a pixel.

18. A storage medium according to claim 13, wherein the data value is a luminance value.